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ABSTRACT

The National Referral Center (NRC) and its many services to the scientific and technical community are discussed in some detail as a preamble to a proposal of a cooperative arrangement between NRC and the American Geological Institute (AGI), its supporting societies, and all geoscientists in a combined effort to enlarge and maintain a comprehensive current resource inventory. (NH)

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INVENTORY OF INFORMATION RESOURCES:

A Comparison of the American Geological Institute (AGI) Pilot Project with the National Referral Center (NRC) Inventory.

by

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Library of Congress

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INVENTORY OF INFORMATION RESOURCES.

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From those preceding me you have heard discussed several activities of the proposed geoscience information system that bear directly on the needs of the geoscientist. If you know of all these activities, and have access to them, and if they contain all the information you want and you can retrieve precisely the data you need -- you're in luck and you don't have to listen to me.

But what happens when they don't satisfy your needs? Where do you start looking? Among the literally hundreds or possibly thousands of places that may have information you seek, how do you locate the one, three of six sources that will satisfy your needs? That's where a resource inventory comes in handy and that's where the organization I represent can be of help. For to define a resource inventory one must describe the National Referral Center.

What is the National Referral Center? I like to describe it as the "information desk" of the scientific and technical community. Operating in the Science and Technology Division, Library of Congress, the Center provides a single place to which anyone may turn for advice on where and how to obtain information on specific topics in science and technology. Functioning as an intermediary, it directs those who have a question concerning a particular subject to organizations or individuals with specialized knowledge of that subject.

The Center is concerned with all fields of science and technology: the physical, biological, social, and engineering sciences, and the many

technical areas relating to them. Similarly, it is concerned with all kinds of information resources, wherever they exist: in government, in industry, and in the academic and professional world.

The concept of "information resources" that the Center has adopted is an extremely broad one. It extends to any organization, institution, group, or individual with specialized knowledge in a given field, provided -- and this is important -- provided it has a willingness to share this knowledge with others. Through a continuing survey, the Center has built up and is maintaining a central inventory of detailed data on such resources in terms of their areas of interest and the services they provide. Included in this inventory are professional societies, university research bureaus and institutes, Federal and state agencies and units within them, industrial laboratories, museum specimen collections, testing stations, and individual experts, as well as more traditional sources of information, such as technical libraries, information and document centers, and abstracting and indexing services. The Center has developed two basic criteria for registering information resources:

- It should have some unique or specialized information or knowledge -- if only on a regional basis.
- It should be willing to share this information with others -- within certain restrictions, if necessary.

Now let us see how these criteria would be applied to certain broad categories of resources:

1. Government organizations

Any government agency -- local, state, or Federal -- that has at least the capability of answering questions is considered an information resource unless the agency specifically declines to cooperate. As an exception,

public libraries are not registered unless they have significant collections in science and technology or perform unique services.

2. Colleges, Universities, and other schools

Any component part of an educational organization, such as a research institute, may be registered as a resource if it will at least provide substantive answers to questions submitted by persons other than organizational staff members. Libraries of educational institutions will be registered if they have collections in science and technology and if services are available outside of the institution.

3. Societies and Associations

Professional societies and trade associations may be registered if they at least provide substantive answers to questions submitted by persons other than members. Organizations which merely publish proceedings of their annual meetings will not be registered. Some organizations may provide an abstracting and indexing service through their publications and this is a legitimate information resource.

4. Commercial Organizations

Commercial organizations with information services that are primarily product-oriented or are only for customers or staff members are not considered to be information resources nor are consulting firms that only provide consulting services.

If an organization has a library, information center, or collections of materials and will allow on-site use or provide interlibrary loan service, it may be registered as an information resource. Also acceptable are companies that distribute technical reports in response to inquiries.

5. Foundations and Nonprofit Organizations

Foundation and nonprofit organizations must at least provide substantive answers to questions. Here again, if an organization has a library, information center, or collections of materials and will allow on-site use or provide interlibrary loan service, it may be registered.

6. Individuals

The registration of organizations rather than individuals is preferred. An exception can be made when an individual provides a highly unique service or possesses special qualifications. An individual having a collection relating to science and technology that is either rare or significant may be registered as an information resource provided he will permit access to it or answer substantive questions about its contents.

Organizations or individuals may be registered regardless of whether their services are free, for a fee, or audience restricted.

In compiling its inventory the Center has sent out letters and questionnaires to nearly 30,000 potential resources, receiving data back on more than 17,000. Analysis of this data has resulted in the registering of over 11,000 resources, 8,000 of which are currently active. Present plans call for the expansion of NRC's inventory to 20,000 resources over the next five years. At the present time only 1.5% (117 resources) of those registered are foreign but an attempt will be made to register all major foreign information and documentation centers.

Some of the Center's operations involve computer processing, utilizing the Library's IBM 360/40. Input to the system is via the Science and Technology Division's two IBM Magnetic Tape Selectric Typewriters (MTST).

The COSATI (Committee on Scientific and Technical Information) subject category list is utilized for classification purposes and the Project Lex Thesaurus -- modified to suit our purposes -- is used as a basic document from which we select indexing terms. The NRC Retrieval Program is designed to search not only the NRC Resource Inventory but also the NRC Request Action Record file, taking advantage of previous searches. The Program will retrieve on twelve different data elements. In a subject search, up to 400 terms may be specified. One such search utilizing 200 subject terms resulted in a listing of 1,100 resources that indicated they provided information in the geosciences and related subject areas. Further analysis indicated that approximately 775 of these are listed in NRC's latest directory on the Physical Sciences and Engineering which was released last June.

SERVICES

In its efforts to bring together those who ask and those who know, the Center handles inquiries covering the widest possible spectrum of science and technology. Illustrative of the kinds of questions received are the following:

- WHO can provide information on the production of manganese sulphate from pyrolusite and sulfur dioxide?
- WHAT organization can furnish information on the general geology of Cook Inlet, Alaska and Tillamook Bay, Oregon?
- WHERE can I find bibliographies on the geology of the Soviet Union?

In answer to such inquiries, the National Referral Center provides names, addresses, telephone numbers and brief descriptions of appropriate information resources. In each case the response is individually tailored to

the inquirer's special interest. It is always the Center's aim to establish the most direct contact possible between the person seeking the information and the places or people who can provide it. Whenever possible an individual is listed as a contact point for each resource. Referral Service is available without charge to any organization or individual working in any scientific field.

To evaluate the effectiveness of its services, the Center initiated, in July 1963, a comprehensive "feedback" program, asking the requester, after an appropriate interval, how he fared in his search for information. The chief question, of course, is whether he obtained the data or material he sought. The inquirer is also asked how many of the resources cited by the Center were previously unknown to him and which resources were the most useful. The final question concerns the requester's general evaluation of the services he received from the Center, and on this last question 82 percent of those responding have indicated full satisfaction. Many feedback responses include name, address, and telephone changes which aid in updating the resource file.

PUBLICATIONS

In addition to its referral service, the Center compiles a series of directories under the general title A Directory of Information Resources in the United States. The directories contain descriptions of organizations active in various areas of science and technology. Each directory has a subject or organizational focus, which may be quite broad (e.g., Biological Sciences, Federal Government) or more restricted (e.g., Water, General Toxicology). Because the activities and informational capabilities of many organizations encompass

more than one subject area, directories overlap in their coverage.

A constantly updated master file of entries written for publication is being built up, from which entries for any given directory are selected by computer and processed for photocomposition. Each entry is drafted by an editor, keyed on the MTST, and converted to tape. Thus, a given entry is input only once. Mailable entries are printed by computer, and are sent to the respective resources for validation. After return, any needed changes are keyed on the MTST -- but only as corrections to existing data fields, not the whole entry. To produce a directory, pertinent entries are selected, sorted, and given a sequential number, all by computer. At this point, the indexes, which are keyed to the sequential number, are generated by computer. The main directory and the Index are put through the Linotron interface program to add the necessary typographic coding, and the two tapes are sent to the Government Printing Office (GPO).

This system has been designed to produce more timely and cost effective NRC directories. Still under consideration are a number of by-products now made possible (or easier) by having the text machine-searchable, including geographic indexes, more sophisticated subject indexes, KWIC indexes to the names of journals published by the resources, acronym indexes, etc. -- all of them designed to make this series of directories even more useful to its future purchasers.

AGI's Pilot Project

So much for the National Referral Center. Now let's take a look at AGI's pilot project. This project may be described as an initial effort to inventory the geoscience information resources in the United States. Owing to the shortage of both funds and time AGI decided that the identification and collection of resources would be conducted utilizing major reference directories. Announcements were also placed in major earth science publications

and newsletters. This initial effort resulted in a listing of 613 candidate resources. Further review and analysis resulted in 496 resources actually being registered. As developed, the system centers around a card index file containing the subject categories and term descriptors for each resource. Cards are keyed to the master file containing detailed information on each resource.

AGI vs NRC

A close examination of the AGI files was made last June. When compared with the NRC file the following similarities were noted:

(1) Ninety percent of the resources in the AGI file are registered with NRC. The remaining ten percent are either in the process of being added to NRC's file, are defunct, or no longer qualify as an information resource. This high percentage of overlap can be explained by AGI's use of three NRC directories as primary source documents.

(2) The forms used by both AGI and NRC in registering resources show a remarkable similarity, both in the number and type of data elements being listed.

(3) NRC now provides a fast and efficient referral service manned by full-time, highly-trained referral specialists. AGI's system, although not operational, does propose a similar service.

(4) AGI's file would have to be updated and expanded before any attempt is made to publish a directory of geoscience information resources. Because of the growing data base,

already on tape, of entries written in suitable form for publication, a directory based on the 1,100 geoscience resources presently listed in NRC's inventory could be a reality by late 1972.

(5) The continued development of AGI's resource inventory will draw heavily on the professional and clerical staff of AGI, especially if it's going to include the identification of new resources; their solicitation and resolicitations; analysis of registration forms; cyclical updatings; processing of referral requests; and the editing and updating of resources prior to any publication efforts. NRC can draw not only on a large body of existing computer software backed by the expertise of the Library's Information Systems Office and Computer Service Center, but can also take advantage of the vast collections of the Library in the identification of new and potential resources and consultations with subject specialists in other divisions of the Library (e.g., Science Policy Research Division, Congressional Research Service; Environmental Policy Division, Congressional Research Service; and the Geography and Map Division, Reference Department).

Over the years NRC has engaged in numerous cooperative relationships with other organizations helping to improve communications and otherwise aiding in the transfer of information throughout the scientific community. While all of the ventures are too numerous to list, a sampling follows:

(1) American Society for Microbiology - To register microbiology information resources.

(2) California State Library - To register information resources in California.

(3) SEQUIP (Study of Environmental Quality Information Programs in the Federal Government) Committee, Executive Office of the President - To provide the Committee with a list of Government and Government-sponsored environmental information resources.

I might add that NRC has frequently provided consultation to national and international interests on information-gathering techniques and on the development and implementation of referral services. Canada, Israel and Japan have sent representatives to discuss in detail the establishment of national referral centers.

What I would like to propose today is a cooperative arrangement between the National Referral Center and the American Geological Institute. NRC would welcome the assistance of AGI, its ~~supporting~~ member societies, and all geoscientists in a combined effort to enlarge and maintain a comprehensive current resource inventory. As to our service, it is available now, free, to any geoscientist who wants to use it. If the cooperative bolstering of our inventory should encourage more of you to use the service--fine, you are all welcome!

Many years and a good deal of money (roughly three million dollars) have been expended in the development and operation of NRC. Its staff is composed of a number of specialists, each of whom has considerable expertise in the procedures and techniques involved in compiling a resource inventory. In this light, it would seem rather foolish for any organization, government or otherwise, not to avail itself of such expertise. And yet, as I see it, that is in

effect what the AGI and its contractor have done.

On the plus side, I think AGI deserves credit for recognizing the value of the resource inventory concept. I'm not here to coerce AGI into an unwanted relationship with the National Referral Center. What I am recommending is that the AGI Committee on Geoscience Information reevaluate its program, study its strengths and weaknesses, make further comparisons with NRC if need be, and then and only then decide on how to proceed with the development of its resource inventory.

As I said, we are ready to cooperate, because we think it will benefit us as well as the geoscience information community. If, however, the Committee reaffirms its previous decision -- so be it -- as a geologist and former "mud logger" in the California oil and gas fields I will do everything in my power to assure its success.